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| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/712,368 | CHANG ET AL. | |
| | Examiner | Art Unit | |
| | Michelle R. Connelly-Cushwa | 2874 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-26.
3. ☒ The drawings filed on 12 November 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Albert S. Penilla on August 16, 2005.

The application has been amended as follows:

Claim 18, line 5, --at least first, second, third and fourth—has been inserted before "electronic signals".

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

Seventeen (17) sheets of formal drawings were filed on November 12, 2003 and have been accepted by the Examiner.

Specification

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Allowable Subject Matter

Claims 1-26 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art cited on attached form PTO-892 is the most relevant prior art known, however, the invention of claims 1-26 distinguishes over the prior art of record for the following reasons:

Regarding claims 1-17; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a wavelength stabilizing apparatus as defined in claim 1, comprising a coarse-tuning module comprising two photo-detecting elements transforming the light waveguides into a first electrical signal and a second electrical and a fine-tuning module comprising two-photodetecting elements receiving the light waves having specific wavelength and transforming them into a third electrical signal and a fourth electrical signal; and a servo element receiving the first, second, third and fourth electrical signals to perform a signal processing, wherein the servo element performs coarse-tuning and channel recognition of the light wave output from the tunable optical element on the basis of a voltage value relating to the first and second electrical signals, and performs fine-tuning and servo control of the light wave output from the tunable optical element with an error signal being a voltage value relating to the third and fourth electrical signals in combination with the other limitations of claim 1. Claims 2-17 depend from claim 1.

Regarding claims 18-26; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a wavelength stabilizing control method as defined in claim 18, comprising a step of transforming the light wave output from the coarse-tuning module and the fine-tuning module into at least first, second, third and fourth electronic signals; and a step of performing a signal processing with the electronic signals, wherein the electronic signals transformed from the coarse-tuning module are taken as basis for coarse-tuning and channel recognition of the light wave output from a tunable optical element, and the electronic signals transformed from the fine-tuning module are processed to obtain an error signal for fine-tuning and servo control of the light wave output from a tunable optical element in combination with the other limitations of claim 18. Claims 19-26 depend from claim 18.

Colbourne et al. (US 6,560,252 B1) is the closest prior art of record. Figure 1 of Colbourne et al. discloses a coarse-tuning module formed by beam splitter (16), filter (20) and one detector (30), and a fine-tuning module formed by beam splitter (24), etalon (26) and two detectors (32 and 34), wherein the detectors (30, 32 and 34) output first, second and third electronic signals that are processed by processor (36), which analyses the output and determines the frequency/wavelength of the laser (10) and provides a control for adjusting the frequency/wavelength of the laser (10). Colbourne et al. does not disclose or suggest providing a second photo-detector in the coarse-tuning module, thereby providing first, second, third and fourth electronic signals, as required by the claims of the present application, and further does not teach a

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processor/servo that receives and processes four electronic signals, as required by the claims of the present application.

Wang et al. (US 2004/0120721 A1), which has the same assignee as the present application, discloses a wavelength stabilizing control device and method, but does not disclose or suggest providing a second photo-detector in the coarse-tuning module or providing first, second, third and fourth electronic signals, as required by the claims of the present application, and further does not teach a processor/servo that receives and processes four electronic signals, as required by the claims of the present application.

Hence, there is no reason or motivation for one of ordinary skill in the art to use the prior art of record to make the invention of claims 1-26.

Conclusion

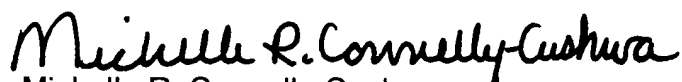
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Any inquiry of a general or clerical nature should be directed to the Technology
Center 2800 receptionist at telephone number (571) 272-1562.

A handwritten signature in black ink, reading "Michelle R. Connelly-Cushwa". The signature is written in a cursive, flowing style.

Michelle R. Connelly-Cushwa

Patent Examiner

August 18, 2005